

**\* NOTICES \***

**JPO and NCIP are not responsible for any damages caused by the use of this translation.**

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

---

**DETAILED DESCRIPTION**

---

[Detailed explanation of a design]

[0001]

[Industrial Application]

This design is related with amelioration of air-suction-system opening in the interior unit of an air conditioner in detail with respect to an air conditioner.

[0002]

[Description of the Prior Art]

The sink of the air at the time of operation of air conditioning or heating and blow off adopt indoor air with a blower from the inhalation grill 23 of the panel 22 arranged in the transverse plane of a case 21, and the air cooled or heated in the heat exchanger from the blow-off hole 24 is made to blow off in a discrete-type air conditioner, conventionally, as shown in drawing 5. In such a case, although it is necessary to make more opening area of said inhalation grill 23 of said panel 22 into size, and to gather the effectiveness of inhalation, the miniaturization of an interior unit progresses, said panel 22 becomes small similarly, and inhalation effectiveness sufficient in just the opening area of said inhalation grill 23 established in this panel 22 may not be acquired in recent years. For this reason, although there are some which formed the inhalation opening 25 in the top face of said case 21 other than this inhalation grill 23, and have increased the whole inhalation capacity, in order for dust to tend to collect since said inhalation opening 25 is arranged in the top face of said case 21 in this case and to maintain an always good air suction system, the frequency of cleaning for removing this dust increases. Moreover, since it was said inhalation grill 23 arranged towards the front of said case 21, and the upper part, and said inhalation opening 25, there was also introduction of air in the same direction and, therefore, it also had the problem of being easy to produce indoor temperature nonuniformity.

[0003]

[Problem(s) to be Solved by the Device]

This design was made in view of such a point, and aims at offering the air conditioner which inhalation effectiveness is gathered [ air conditioner ] and also decreases indoor temperature nonuniformity by establishing a means to lean the panel of an interior unit ahead and to expand the opening area of air-suction-system opening at the time of operation of an air conditioner.

[0004]

[Means for Solving the Problem]

Air-suction-system opening by which opening was carried out to the transverse plane and top face of a case in order that this design might solve an above-mentioned technical problem, In the air conditioner which comes to have a heat exchanger and a blower from the air exit cone by which was missing from the base and opening was carried out from the transverse-plane lower part of said case, and said air-suction-system opening between airstream ways with

said air exit cone While applying to a top face from the transverse plane of said case, forming the paragraph section and forming said air-suction-system opening in this paragraph section It is characterized by coming to support to revolve to bearing which formed the shaft in both the lower limits of the panel which formed the inhalation grill in the transverse plane and the side face, and blockaded the top face, and formed the same axle in the side face of said paragraph section free [ rotation ].

[0005]

[Function]

According to the above-mentioned configuration, at the time of operation of an air conditioner The shaft of the panel supported to revolve by bearing of a case by lengthening a panel from the front section of a case to this side rotates, and it falls to a front position. While the top section of the panel which had closed inhalation opening of the case upper part moves to the front and inhalation opening is opened, the inhalation grill of the both-sides section appears in the method of both sides of the transverse plane of a case, and adopts air from the upper part and the method of both sides besides the front of a case. Therefore, when air-suction-system openings increase in number to the upper part of a case, and the method of both sides, while decreasing indoor temperature nonuniformity, the opening area of the whole inhalation opening increases and inhalation effectiveness goes up. In the relaxation time of an air conditioner, by stuffing a panel into the front section of a case, while the top section of a panel covers inhalation opening with which the case upper part was equipped and closes, inhalation opening of the both-sides section also enters the interior of a case, and when the top section of a panel closes inhalation opening of the case upper part, adhesion of dust etc. is prevented.

[0006]

[Example]

Hereafter, the example by this design is explained to a detail based on a drawing. Drawing 1 is the expansion perspective view showing one example of the air conditioner by this design, drawing 2 is a perspective view in the condition that the air conditioner has stopped, and drawing 3 is a perspective view in the condition of operating. Drawing 4 is the important section sectional side elevation showing other examples. In drawing, 1 is the case of an interior unit and the paragraph section 15 which was missing from the top face from this transverse plane, and entered the interior is formed in this case 1. It is considering as one inlet port of the airstream way which establishes the slot 16 which has predetermined width of face and the predetermined depth in the both sides of this paragraph section 15, and equips the upper part of this paragraph section 15 with the louver-like inhalation opening 3, and is open for free passage to a blower (not shown) and a heat exchanger 2. The bearing 4 of the pair which countered inside is formed in both the lower parts of the front section 14 of said case 1, and they are equipped with said air exit cone 13 by which applied and opening was carried out to this lower part on the base from the transverse-plane lower part corresponding to the outlet of said airstream way.

[0007]

5 is the panel which carried out the configuration which engages with said paragraph section 15 and said slot 16, it forms in the upper part of this panel 5 the top section 6 which engages with said inhalation opening 3 of said case 1, forms the inhalation grill A7 and the inhalation grill B8 which are open for free passage to said heat exchanger 2 at this anterior part and the both-sides section, and is taken as the inlet port of another side of said airstream way. And the front face of said panel 5 turns into the same field at the front section 14 of said case 1, and he is trying to fall to the location of a predetermined inclination by lengthening in the

direction of this side by forming the shaft 9 supported to revolve free [ the rotation to said bearing 4 of said case 1 ] in both the lower limits of said panel 5, fixing said shaft 9 to revolve to said bearing 4, and pushing in said panel 5 in the direction of said case 1.

[0008]

Next, actuation is explained. By said top section 6 of said panel 5 covering said inhalation opening 3 of the upper part of said case 1, and closing, and lengthening said panel 5 in the direction of this side by stuffing said panel 5 into the front section 14 of said case 1 While the top section 6 which had covered said inhalation opening 3 moves in this direction and the inhalation opening 3 appears, the inhalation grill B8 of the both sides of a panel 5 also appears. Therefore, for example, within a fixed period which stops an air conditioner A fixed period which dust etc. will not adhere to said inhalation opening 3, and will operate an air conditioner if said panel 5 is pushed in If said panel 5 is lengthened in the direction of this side, the air-suction-system passage of said inhalation opening 3 and said inhalation grill B8 newly increases in number, and since said inhalation grill B8 adopts indoor air extensively from the method of both sides of said case 1 while inhalation effectiveness increases, indoor temperature nonuniformity is mitigable.

[0009]

As other examples, at the end of the shaft 9 arranged in both the lower limits of said panel 5 For example, while forming the pinion A10 from which predetermined angle of rotation is obtained The end of the bearing 4 of the pair formed in both the lower parts of said case 1 may be equipped with the motor 12 with a moderation device which fixed the pinion B11 which gears to said pinion A10, and said panel 5 may be opened and closed by a change-over and linkage of operation and a halt through a control section. In addition, if it is the thing of the method which is not limited to this example and makes a motor a driving source about closing motion of said this panel 5, it cannot be overemphasized that it is applied to anythings.

[0010]

[Effect of the Device]

it explained above -- as -- this design -- if it is, since an indoor temperature gradient can also be mitigated and inhalation opening of the upper part of an interior unit is closed by relaxation time while improving inhalation effectiveness, it has the effectiveness which prevents adhesion of dust by leaning the panel of an interior unit and expanding the opening area of inhalation opening at the time of operation of an air conditioner.

---

[Translation done.]

**\* NOTICES \***

**JPO and NCIPI are not responsible for any damages caused by the use of this translation.**

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

---

DESCRIPTION OF DRAWINGS

---

[Brief Description of the Drawings]

[Drawing 1] It is the expansion perspective view showing one example of the air conditioner by this design.

[Drawing 2] It is a perspective view in the condition that operation of the air conditioner has stopped.

[Drawing 3] It is a perspective view in the condition that the air conditioner is operating.

[Drawing 4] It is the important section sectional view showing other examples.

[Drawing 5] It is the perspective view showing the conventional air conditioner.

[Description of Notations]

1 Case

2 Heat Exchanger

3 Inhalation Opening

4 Bearing

5 Panel

6 Top Section

7 Inhalation Grill A

8 Inhalation Grill B

9 Shaft

10 Pinion A

11 Pinion B

12 Motor

13 Air Exit Cone

14 Front Section

15 Paragraph Section

16 Slot

---

[Translation done.]

\* NOTICES \*

JPO and NCIP1 are not responsible for any damages caused by the use of this translation.

1.This document has been translated by computer. So the translation may not reflect the original precisely.

2.\*\*\*\* shows the word which can not be translated.

3.In the drawings, any words are not translated.

---

CLAIMS

---

[Utility model registration claim]

[Claim 1] Air-suction-system opening by which opening was carried out to the transverse plane and top face of a case, and the air exit cone by which was missing from the base and opening was carried out from the transverse-plane lower part of said case, In the air conditioner which comes to have a heat exchanger and a blower from said air-suction-system opening between airstream ways with said air exit cone While applying to a top face from the transverse plane of said case, forming the paragraph section and forming said air-suction-system opening in this paragraph section The air conditioner characterized by coming to support to revolve to bearing which formed the shaft in both the lower limits of the panel which formed the inhalation grill in the transverse plane and the side face, and blockaded the top face, and formed the same axle in the side face of said paragraph section free [ rotation ].

[Claim 2] The air conditioner according to claim 1 characterized by coordinating a motor with the shaft of said panel and coming to open and close this panel.

---

[Translation done.]

(19)日本国特許庁 (J P)

(12) 公開実用新案公報 (U)

(11)実用新案出願公開番号

実開平7-12821

(43)公開日 平成7年(1995)3月3日

|                          |         |         |     |        |
|--------------------------|---------|---------|-----|--------|
| (51)Int.Cl. <sup>6</sup> | 識別記号    | 片内整理番号  | F I | 技術表示箇所 |
| F 2 4 F 1/00             | 4 0 1 C | 6803-3L |     |        |
|                          | B       | 6803-3L |     |        |
| 13/14                    | H       | 8511-3L |     |        |

審査請求 未請求 請求項の数2 O L (全 2 頁)

(21)出願番号 実願平5-39472

(22)出願日 平成5年(1993)7月20日

(71)出願人 000006611

株式会社富士通ゼネラル

神奈川県川崎市高津区末長1116番地

(72)考案者 重成 正雄

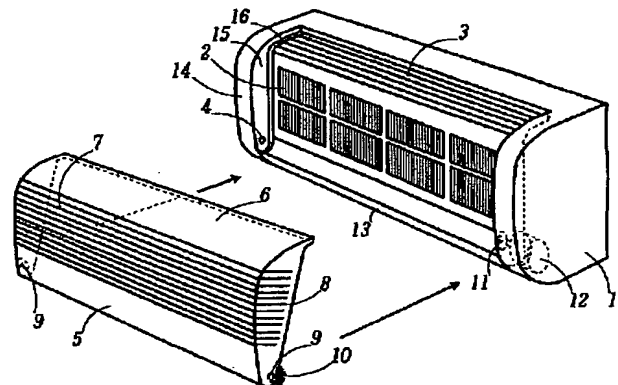
川崎市高津区末長1116番地 株式会社富士通ゼネラル内

(54)【考案の名称】 空気調和機

(57)【要約】

【目的】 空気調和機の運転時に、室内機のパネルを前面に傾けて空気吸入口を増やして吸入効率を上げると共に室内の温度差をも軽減する。

【構成】 筐体の正面および上面に開口された空気吸入口と、筐体の正面下部から底面にかけて開口された空気吹出し口と、空気吸入口から空気吹出し口との空気流路間に熱交換器及び送風機を備えてなる空気調和機において、筐体1の正面から上面にかけて段落部15を形成し、同段落部15に前記空気吸入口を形成する一方、正面及び側面に吸入グリルA7及び吸入グリルB8と上面を閉塞した上側部6とを形成したパネル5の両下端に軸9を形成し、同軸9を前記段落部15の側面に形成した軸受部4に回動自在に軸支する。



1

2

## 【実用新案登録請求の範囲】

【請求項1】 筐体の正面および上面に開口された空気吸入口と、前記筐体の正面下部から底面にかけて開口された空気吹出し口と、前記空気吸入口から前記空気吹出し口との空気流路間に熱交換器および送風機を備えてなる空気調和機において、前記筐体の正面から上面にかけて段落部を形成し、同段落部に前記空気吸入口を形成する一方、正面および側面に吸入グリルを形成し上面を閉塞したパネルの両下端に軸を形成し、同軸を前記段落部の側面に形成した軸受部に回転自在に軸支してなることを特徴とする空気調和機。

【請求項2】 前記パネルの軸にモータを連係し、同パネルを開閉してなることを特徴とする請求項1記載の空気調和機。

## 【図面の簡単な説明】

【図1】 本考案による空気調和機の一実施例を示す展開斜視図である。

【図2】 その空気調和機の運転が休止している状態の斜視図である。

【図3】 その空気調和機が運転している状態の斜視図で\*20

\*ある。

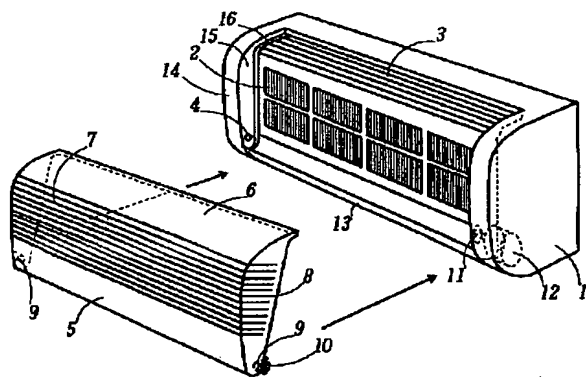
【図4】 他の実施例を示す要部断面図である。

【図5】 従来の空気調和機を示す斜視図である。

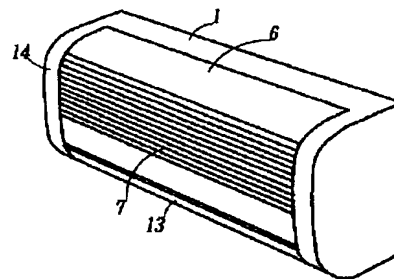
## 【符号の説明】

- 1 筐体
- 2 熱交換器
- 3 吸入口
- 4 軸受部
- 5 パネル
- 6 上側部
- 7 吸入グリルA
- 8 吸入グリルB
- 9 軸
- 10 ビニオンA
- 11 ビニオンB
- 12 モータ
- 13 空気吹出し口
- 14 前面部
- 15 段落部
- 16 溝

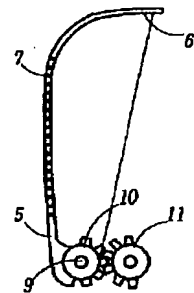
【図1】



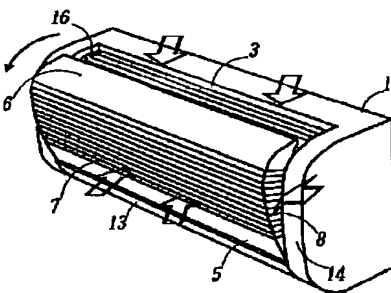
【図2】



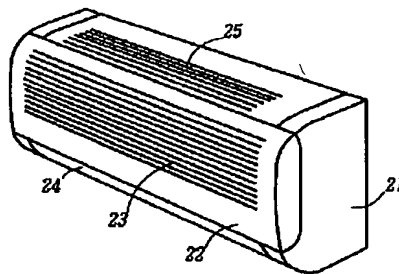
【図4】



【図3】



【図5】



**【考案の詳細な説明】****【0001】****【産業上の利用分野】**

本考案は空気調和機に係わり、詳しくは空気調和機の室内機における空気吸入口の改良に関するものである。

**【0002】****【従来の技術】**

従来、分離型空気調和機において、冷房または暖房の運転時の空気の吸込みおよび吹出しは、図5に示すように、筐体21の正面に配設したパネル22の吸入グリル23から送風機により室内の空気を取り入れ、吹出孔24から熱交換器にて冷却または加熱された空気を吹き出すようにしている。このような場合、前記パネル22の前記吸入グリル23の開口面積をより大にして吸入の効率を上げる必要があるが、近年、室内機の小型化が進み前記パネル22も同様に小型になり、このパネル22に設けた前記吸入グリル23の開口面積のみでは十分な吸入効率が得られない場合がある。このため、同吸入グリル23の他に前記筐体21の上面に吸入口25を設けて、全体の吸入容量を増やしているものもあるが、この場合、前記吸入口25が前記筐体21の上面に配設されているため塵埃が溜まり易く、常に良好な空気吸入を維持するためには、この塵埃を取り除くための清掃の頻度が多くなる。また、前記筐体21の前方および上方に向けて配設した前記吸入グリル23および前記吸入口25であるため空気の取り入れも同じ方向にあり、よって、室内の温度ムラも生じ易いという問題もあった。

**【0003】****【考案が解決しようとする課題】**

本考案はこのような点に鑑みなされたもので、空気調和機の運転時に、室内機のパネルを前方に傾けて空気吸入口の開口面積を拡大する手段を設けることにより、吸入効率を上げて室内の温度ムラも減少させる空気調和機を提供することを目的としている。

**【0004】****【課題を解決するための手段】**



本考案は上述の課題を解決するため、筐体の正面および上面に開口された空気吸入口と、前記筐体の正面下部から底面にかけて開口された空気吹出し口と、前記空気吸入口から前記空気吹出し口との空気流路間に熱交換器および送風機を備えてなる空気調和機において、前記筐体の正面から上面にかけて段落部を形成し、同段落部に前記空気吸入口を形成する一方、正面および側面に吸入グリルを形成し上面を閉塞したパネルの両下端に軸を形成し、同軸を前記段落部の側面に形成した軸受部に回動自在に軸支してなることを特徴とする。

#### 【0005】

##### 【作用】

上記の構成によれば、空気調和機の運転時には、パネルを筐体の前面部から手前に引くことによって、筐体の軸受部に軸支されたパネルの軸が回転して手前の所定の位置まで倒れ、筐体上部の吸入口を塞いでいたパネルの上側部が手前に移動して吸入口が開かれると共に両側部の吸入グリルが筐体の正面の両側方に出現し、空気を筐体の前方の他に上方および両側方からも取入れる。従って、空気吸入口が筐体の上方と両側方に増えることによって、室内の温度ムラを減少すると共に全体の吸入口の開口面積が増えて吸入効率があがる。空気調和機の休止時には、パネルを筐体の前面部に押込むことによって、パネルの上側部が筐体上部に備えた吸入口に被さって塞ぐと共に両側部の吸入口も筐体の内部に入込み、筐体上部の吸入口をパネルの上側部が塞ぐことにより塵埃等の付着を防ぐ。

#### 【0006】

##### 【実施例】

以下、図面に基づいて本考案による実施例を詳細に説明する。図1は本考案による空気調和機の一実施例を示す展開斜視図で、図2はその空気調和機が休止している状態の斜視図で、図3は運転している状態の斜視図である。図4は他の実施例を示す要部側断面図である。図において、1は室内機の筐体で、同筐体1において、この正面から上面にかけて内部に入り込んだ段落部15を形成し、この段落部15の両側には所定の幅と深さを有する溝16を設け、また、同段落部15の上部には、例えば、ルーバー状の吸入口3を備えて送風機（図示せず）および熱交換器2に連通する空気流路の一方の入口としている。前記筐体1の前面部

14の両下方には、内側に対向した一对の軸受部4を形成し、この下方には前記空気流路の出口に対応して正面下部から底面にかけて開口された前記空気吹出し口13が備えられている。

#### 【0007】

5は前記段落部15と前記溝16に係合する形状をしたパネルで、同パネル5の上部には、前記筐体1の前記吸入口3に係合する上側部6を形成し、この前部と両側部に前記熱交換器2に連通する吸入グリルA7および吸入グリルB8とを形成して前記空気流路の他方の入口としている。そして、前記パネル5の両下端に前記筐体1の前記軸受部4に回動自在に軸支される軸9を設け、前記軸受部4に前記軸9を軸着して前記筐体1の方向に前記パネル5を押込むことにより、前記筐体1の前面部14に前記パネル5の前面が同一面となり、手前方向に引くことにより、所定の傾斜の位置まで倒れるようにしている。

#### 【0008】

次に動作を説明する。前記筐体1の前面部14に前記パネル5を押込むことによって、前記筐体1の上部の前記吸入口3に前記パネル5の前記上側部6が被さって塞ぎ、また、前記パネル5を手前方向に引くことによって、前記吸入口3に被さっていた上側部6が同方向に移動して吸入口3が現れると共にパネル5の両側の吸入グリルB8も出現する。従って、例えば、空気調和機を休止する一定の期間内は、前記パネル5を押し込んでおけば前記吸入口3に塵埃等が付着することがなく、また、空気調和機を運転する一定の期間は、前記パネル5を手前方向に引いておけば、前記吸入口3および前記吸入グリルB8の空気吸入流路が新たに増え、吸入効率が上がると共に前記吸入グリルB8が前記筐体1の両側方から室内の空気を広範に取り入れるので室内の温度ムラを軽減することができる。

#### 【0009】

他の実施例として、前記パネル5の両下端に配設した軸9の一端に、例えば、所定の回転角度が得られるようなピニオンA10を設ける一方、前記筐体1の両下方に形成した一对の軸受部4の一端に、前記ピニオンA10に噛合するピニオンB11を軸止した減速機構付モータ12を装着し、制御部を介して運転および停止の切換と連動にて前記パネル5を開閉してもよい。なお、この前記パネル5

の開閉については、本実施例に限定されるものではなく、モータを駆動源とする方式のものであれば、いかなるものにも適用されることは言うまでもない。

【0010】

【考案の効果】

以上に説明したように、本考案においては、空気調和機の稼働時に、室内機のパネルを傾けて吸入口の開口面積を拡大することによって、吸入効率をよくすると共に室内の温度差をも軽減することができ、また、休止時には室内機の上部の吸入口が塞がれているので塵埃の付着を防ぐ効果を有する。